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Virginia's Wildlife and Related Natural Resources
and to the Betterment of
Outdoor Recreation in Virginia*

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COMMONWEALTH OF VIRGINIA

ALBERTIS S. HARRISON, JR., Governor

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COVER: Once proud master of North American skies, the bald eagle now is a vanishing race in continental United States and no one knows exactly why or what to do about it. Loss of this living symbol of freedom and independence will not rock the nation's economy, but the land will be noticeably poorer without him. Our artist: John W. Taylor, Edgewater, Maryland.

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Independence

ON July 4th we celebrate Independence Day, birthday of a nation—our nation—whose rise and growth is one of the most dramatic stories in human history. We glory in independence, and in our struggles to achieve and maintain it; but the present is a fleeting moment and history is only prelude to the future which now is in our hands.

A strong and vigorous people has made of itself a great nation here in these United States. But we spring not from any biologically unique or superior race, for to these shores have come people from every land, with the same inherent strengths and weaknesses as those who remained behind.

We have prospered under the finest system of government conceived by man—one which still may be far from perfect but which contains within itself a great capacity to correct its own faults. Yet, while in some of its forms our government may be unique, its democratic substance was the heritage of a thousand years of Anglo-Saxon struggle for personal rights and freedoms.

The Americans who proclaimed their independence in 1776 stood on the edge of a continent so vast and so rich that it was, and still is, awe-inspiring. It is this land, this land and our experience on it, that alone have been uniquely American. It is this rich, fertile and spacious continent that has provided the only setting in which our nation, our systems, our institutions, could have flourished. It is the essence of conservation that the capacity of the land to continue to provide that setting shall not be impaired.

Those who asserted this country's independence were not wild-eyed, undisciplined backwoodsmen, nor were they people in revolt against intolerable poverty or persecution. Responsible lawyers, merchants, and plantation owners, their own security was not at stake, until they made it so. But they lived close enough to the land to value liberty above security; to know that sloth and improvidence cannot be transformed into affluence and responsibility by a paternalistic government; and to see that this nation of people in this land could develop its inherent strengths and give full expression to its aspirations only through independence.

The farther man gets from the soil the less he seems able to understand the fundamentals of independence either as a philosophy or as a way of life. Many years ago, L. H. Bailey said:

"Any close and worthwhile contact with the earth tends to make one original or at least detached in one's judgments and independent of group control . . . Never in open country do I see a young man or woman at nightfall going down the highways or the long fields but I think of the character that develops out of the loneliness, in the silence of vast surroundings . . . and of the suggestions that must come from these situations as contrasted with those that arise from the babble of the crowds. There is hardiness in such training; there is independence . . ."

Our nation has tended away from the open spaces and the hardiness and independence they engender. Now we are caught in a great upsurge of interest and participation in outdoor recreation. If this is to be merely a means of filling idle hours with frivolous activity, then we will not pass on to the generation now in school the heritage that has been entrusted to our care. But if we are wise enough to use the opportunities which technology and affluence now give us to reestablish a "close and worthwhile contact with the earth," Independence Day celebrations can continue to have meaning and significance for generations yet unborn.—J. F. Mc.

Bonanza In A Land Of Plenty

ON a recent fishing trip with my fishing partner of 30 years, Dodd Bryant, we covered some of the Old Dominion's finest streams, in search of the always elusive trout.

We fished the following streams, Cripple Creek in Wythe County, the South Fork of the Holston River in Smyth County, White Top Laurel in Washington County, Big Tumbling in Smyth and Washington Counties, Wolf Creek in Bland County, Big Stony in Giles County, Potts Creek in Craig County, and the Jackson River in the Gathright Wildlife Management Area.

We fished only with flies, and found trout in great abundance in all the streams, but the particular stream that I want to thank the Commission for is Big Tumbling, especially the newly established pay-as-you-go part.

Any fisherman who wants to feel the smashing strike, the wild jumping and the tenacious bulldogging of a heavy fish should surely try this stream. We expected to find plenty of trout, but were not expecting a stream so beautiful, or trout so large. We kept three over 20 inches and several from 15 to 18 inches, good trout in any man's land.

This program is surely a bonanza in a land of plenty. It provides a fitting climax to a fine trouting adventure.

It was not only the fine fishing, and the beauty of the stream, but the pleasure of meeting and knowing the men who have made this program possible. Nowhere have I seen a more dedicated group of men. It seemed to us that their every thought was of the visiting fishermen, to provide them with the best of fishing, and to be most courteous and pleasant to them.

Now I do not want to give the impression that this stream is a meat market, that you can pay your dollar and be assured of five fine trout. It is a known fact that the trout are there, but you still have to catch them. "Some can and some can't."

An added pleasure was to see our friend of long standing, Woodrow Newman, Game Warden for Smyth County for a long time, and always a credit to the state of Virginia.

Again we want to thank our Game and Inland Fisheries Commission for giving us old trout fishermen a break. Maybe some of my old buddies will break their fishing gear out of the moth balls and give this fine stream a whirl.

Julian B. Kester
Martinsville



AN ever-increasing human population, with ever-increasing demands for goods and services of all kinds, and an ever-expanding technology developed to meet those demands, are altering rapidly and irrevocably the physical world in which we live. Industrial expansion, modern agricultural techniques, development of new sources of energy, and municipal growth—all are essential to the economic welfare of our state—yet all create complex problems in *environmental health*, the solution of which is no less essential to the welfare of this and future generations.

Speaking before the Interstate Commission on the Potomac River Basin at its winter meeting in Arlington, Dr. Morris L. Brehmer of the Virginia Institute of Marine Science, Gloucester Point, stated that an equivalent of over three million dollars worth of nitrogen and phosphorus fertilizer is dumped into the Potomac River each year in sewage from the District of Columbia metropolitan area.

According to Dr. Brehmer, the pea-soup water of the upper Potomac, which last summer destroyed the usefulness of the river for swimming and water-skiing and contributed to a tremendous fish kill which littered the shores of Potomac Beach, Colonial Beach, and Westmoreland State Park, was brought about by over-enrichment of the water.

Dr. Brehmer estimates that the *daily* nutrient contribution from effluent discharged into the Potomac River from Washington, D. C. is 22,700 pounds of phosphorus and 68,000 pounds of nitrogen. This is an annual equivalent of 45,000 tons of commercial fertilizer dumped into the river.

"Can the tidal Potomac assimilate this quantity of nutrients without algal blooms or unbalanced environmental conditions unfavorable to fish, or without rendering the water worthless as a multi-purpose resource?" Dr. Brehmer

asked. "Last summer's observations indicate that it obviously cannot during periods of low stream flows and bright sunny days."

Man's contamination of his environment is not a local problem, nor does it involve only the disposal of sewage and other wastes. Fish in the lower Mississippi have been dying by the millions each fall and winter since 1960, and river boat captains have reported the strange kill spreading up the river as far as St. Louis. Investigations ruled out bacteria, parasites, low oxygen content of the water, and temperature changes as possible causes. Last March the killers were identified as endrin and dieldrin, two of the more toxic and persistent of the chlorinated hydrocarbons, that have been widely used as insecticides on Midwest farm

Fish, wildlife and natural water resources are normal components of an adequate and healthful environment for man.
Virginia Dept. of Conservation & Economic Development Photos





Va. Dept. of Cons. & Economic Dev. photo

crops, pastures, forests and sugar cane fields. Scientists checking the municipal water supply for New Orleans reported that present levels of these poisons in the drinking water do not constitute any *immediate* health problem, but no one seems sure how much longer Mississippi water, now definitely unsafe for fish, will be safe for swimming, drinking, irrigation and commercial use.

The use of chemical poisons to control animal pests and undesirable vegetation has set off the most recent public debate on the subject of environmental contamination. But the older problem of water pollution from industrial waste, sewage disposal, and land erosion remains unsolved and is becoming more critical, while radiation and gaseous contamination of the atmosphere present relatively new threats. Fish and wildlife, soil, water, forest resources, and the very atmosphere we breathe are all intimately interrelated components of the essential environment of man. Activities which alter this environment, for better or for worse, need to be coordinated. Conflicting interests need to be resolved, on the basis of the best and most complete information obtainable.

The Governor's Committee on Environmental Health

In 1962 Governor Albertis S. Harrison, Jr., appointed an *ad hoc* committee of State department heads to explore the need for increased State activity, better coordination among agencies, and intensification of public information and education efforts, in the field of environmental health.

From the *ad hoc* committee's initial studies and reports, it was evident that the department heads should continue to function as a standing Inter-agency Committee on Environmental Health.

From the very beginning this Committee's work has been vastly more important than it has been spectacular. Its aim has not been to take over functions and responsibilities of established agencies in the field of environmental health, but rather to insure that all interests are considered and that the

best available technical advice is heard when government decisions affecting the environment are in the making. The committee has provided for easy inter-departmental communication with respect to state activities in which the relationship of man to his environment is involved, and has established a mechanism for keeping all departments informed as to programs, activities and problems in this field. It has set up workable procedures for coordinating activities, including preparation and study of legislative proposals. It has sponsored a joint public educational effort to promote safe handling and use of potentially dangerous pesticides. And it has formulated for guidance of state agencies the policy statement which is printed on page 21.



TV & Motion Picture Productions, Inc. photo
The use of poisons to control pests has set off the most recent debate on environmental contamination.

Such a statement of broad policy is of value only to the extent it is understood and applied as basis for action, and a mechanism for coordinating activities and resolving rather than ignoring conflicts of interest is only of value to the extent it is used. Nevertheless, the forging of both these instruments is a vital and basic first step toward the goal of a human population that can fulfill its own material aspirations and yet live in harmony with the land. (Continued on page 20)

The effects of direct exposure to toxic substances is the most readily observed result of contaminating the environment, but subtle changes in the environment itself may be an even greater hazard.

U.S.D.I. Fish & Wildlife Service photo



SMALL TURKEY CROP IS FORECAST FOR '64

WITH broods hardly a month old it is too early to say whether the 1964 wild turkey nesting and rearing season will go down in history as a successful one, or as a fourth consecutive failure in most of the state, but it is a safe bet that in either event turkey hunting will be fairly good next fall in one region only (the Central Mountain range) and poor just about everywhere else. The reason for this gloomy prediction is that except in the Central Mountain range there was insufficient new breeding stock produced and carried over to "turn the corner" in 1964 and reverse the declining trend of the past three years even if this should turn out to be an exceptionally good breeding season. Nowhere but in the Central Mountains was a 60-40 ratio of juveniles to adults recorded last season; and anything less than 60% juveniles in a fall turkey kill is grounds for predicting a reduced population and a smaller harvest the next season.

What is the probable accuracy of such a forecast? Is it based on theory or fact? Does anyone *really know* how much young stock it takes to replenish losses and build up breeding stock, and thus make possible an increased harvest the next year?

Tables of figures usually make extraordinarily dull reading, but anyone who is really concerned about our wild turkeys, and the sport of turkey hunting, may find the statistics below a good deal more interesting than most. They show how the percentage of juvenile birds bagged in one season can be an indicator of turkey abundance the next fall.



Commission photo by Kesteloo

Experience shows that a high juvenile-to-adult ratio in the fall precedes an increase in wild turkeys the following year. The young-to-old ratio in last year's recorded kill was far below normal.

WILD TURKEY HARVESTS, 1959-1963

Range	1959		1960		1961		1962		1963*	
	Total	Young	Total	Young	Total	Young	Total	Young	Total	Young
W. Piedmont	338	66%	536	57%	391	45%	315	52%	146	29%
E. Piedmont	1352	71%	1908	62%	1303	39%	1137	52%	453	38%
Tidewater	451	64%	564	47%	437	39%	351	63%	111	24%
Northern	327	55%	305	54%	286	49%	257	57%	121	55%
Central Mt.	1203	63%	1284	62%	1394	65%	1022**	64%	980	67%
Southwest Mt.	(CLOSED TO TURKEY HUNTING)									

*Legal hunting season was reduced to one month in 1963.

**Effective hunting days were reduced in Central Mountain range in 1962 by 20 consecutive days of snow and ice crust.

Commission photo by Kesteloo



By JIM McINTEER
Chief, Education Division

The Piedmont Ranges

Look first at the record for the Piedmont ranges. A 1959 hunting harvest containing 66% juveniles in the Western Piedmont and 71% in the Eastern Piedmont was followed by a substantial increase in hunting success in 1960. But the percentage of juveniles was down in 1960, and so was the 1961 harvest. Since 1961, young birds have consistently comprised less than 60% of the kill, and the total Piedmont harvest has continued to decline markedly every single year.

The Tidewater Range

Now look at the figures for the Tidewater range. Here, too, the recorded fall turkey kill has increased just once since 1959. It reached its peak in 1960, the year following a harvest in which 64% of the birds were young of the year. But that peak 1960 kill contained only 47% juveniles, and the kill dropped in 1961 from 564 birds to 437. Of the 437 turkeys shot in 1961, only 39% were young and the next year's bag dropped again, to 351.

The 1962 kill in Tidewater did contain a little over 60% juveniles, however, and with this improved ratio a larger kill than the 111 recorded in 1963 might have been expected; but the 1963 recorded kill is not comparable to that of past years since last fall the season was shortened and delayed for the express purpose of reducing the hunters' harvest all over the state, and in addition a group of Tidewater counties that accounted for nearly a third of the 1962 kill were closed entirely to turkey hunting in 1963.

Obviously, factors other than the previous fall's adult-to-young ratio can limit any season's turkey crop. But the fact that stands out is that *the only increases in the recorded turkey kills either in the Tidewater or Piedmont ranges followed years in which over 60% of the harvest was made up of juvenile birds.*

The Other Ranges

One range in the state has shown a declining recorded kill every year since 1959. And significantly, this Northern range has never achieved a 60% ratio of young birds to total kill.

The one bright spot in the whole picture occurs in the Central Mountain range. Here the recorded harvest did not turn down as it did in every other range in the state after 1960, but was still on the increase in 1961. Furthermore, there is reason to believe that the lower kill in 1962 and in 1963 in *this particular range* did not reflect a comparable decline in the turkey population. In 1962 the number of effective hunting days was reduced by unfavorable weather in the mountains, during which the ground was covered with snow and icy crust for 20 consecutive days during the hunting season. And of course the 1963 legal hunting season was drastically curtailed all over Virginia. The harvest in the Central Mountain range was down only 5% in 1963, as compared to a reduction of over 50% everywhere else in the state. It is quite probable that in this one range the fall turkey population has either remained about level or increased every year. The decreased kill in both 1962 and 1963 may have resulted entirely from reduced hunting brought about by unfavorable hunting weather one year and legal restriction the other. And what of the juveniles that have been recorded in the kill? *In not a single year have young turkeys comprised less than 60% of the birds killed in the Central Mountain range!*

Magic 60%?

The figures in the accompanying table were compiled over a period spanning five hunting seasons in five distinct turkey ranges. They provide 20 separate correlations between

(Continued on page 22)



Recording the kill. The total number of turkeys checked by hunters gives biologists a measurement of the species' relative abundance. Age and sex data from a cross section of the kill provide more important clues to the status and current trends of wild turkey populations.

"CR-R-HARK! The Rains Are A-Coming!"

CROAKETH THE DEERFIELD RAVENS

By DWIGHT R. CHAMBERLAIN
Rochester, New York

AFTER carefully sifting a patch of still snow-laden pasture in hopes of my first "Eureka" of the spring's togetherness, the discovery of the prairie horned lark's nest, I paused, happily interrupted by the distant reverberating *cr-roak—cr-roak* of the majestic raven, alternately flapping and sailing among the clouds near its favorite haunt, Elliott Knob. Elliott Knob (elevation 4,458 ft.) is the well-known promontory of North Mountain which guards the Deerfield Valley to the east. Hankey Mountain to the northeast, Shenandoah Mountain, and around counter-clockwise to Walker Mountain due west, completes the rugged guardianship of an area known statewide for its fine brand of sheep, black angus, and Herefords, the Deerfield Valley.

Still ensconced by these rolling pinnacles are the ancestors of mountain folk whose survival had been partially predicated on omens foretelling the weather to be. For instance, whenever a raven was observed winging high over the Valley connecting its highest peaks, the natives interpreted its occasional appearance as a premonition of rain. But ironically, ornithologists are now reporting more ravens in Virginia than ever before, and last summer entertained one of the worst droughts in the history of Augusta County. In substantiation elsewhere, to quote Bent, "The Reverend J. J. Murray tells me that the raven is fairly common in Rockbridge County, in the center of the valley of Virginia. It seems to me to be commoner now than it was 10 years ago. This is particularly true in the Blue Ridge Mountains."

The exact subspecies of the raven heretofore inhabiting the Deerfield Valley is the largest of all the American races, the northern raven (*corvus corax principalis*). According to the 1931 A.O.U. check list, the range of this subspecies extends from the arctic regions in "northwestern Alaska, Melville Island, northern Ellesmere Island, and northern Greenland south to Washington, central Minnesota, Michigan, coast region of New Jersey (formerly), and Virginia, and in the higher Alleghenies to Georgia."

The casual observer and occasionally the amateur ornithologist have erred while depicting the raven from its clanish cousins, the crows. For them, size alone is not conclusive, as both the southern and eastern races of the common crow are abundant in the Deerfield Valley. Experience illustrates little size differential (at any distance) among the mature male eastern common crow when strutting beside an immature female northern raven. Aside from this anomaly, however, an alert observer can't miss on size alone. Other distinguishing fieldmarks with which only the raven is endowed are: an ability to soar hawk-like; shaggy attenuated throat feathers; utterance of a deep-toned strident croak in contrast to the well-known caw of the crow; and a distinctive wedge-shaped tail not at all congruent with the smaller rounded scut (comparatively) of the crow.

Recently, I was informed by Mrs. R. E. Christian, a



well-known Virginia ornithologist, that raven representation in the Deerfield Valley is very stable, with perhaps a slight increase being manifested of late. Since I was enjoying a most relaxing Shenandoah vacation at the time, I decided that a short study of the Deerfield Valley's promulgating influence on ravens might be just the catalyst needed to round out this wonderful sojourn.

The reasons why the northern raven is an ecological success in the Deerfield Valley are many and varied. Predominating is its protection, but not by the Migratory Bird Treaty Act (July 3, 1918) as many suppose, but by Virginia state law.

Also, the Deerfield Valley has realized a complete agrarian transition after being settled by all wheat and grain minded aborigines. What used to be a valley of unsuccessful grain harvesters is now a dale of successful hog, cattle, horse, and sheep producers. However, the miscarriage of ewes are common, cattle die, more pigs are butchered than ever before, and the feces left by all this stock would sustain a raven city. Needless to say, such carrion, which was non-existent prior to the agricultural revolution here, has augmented the raven's well-being substantially.

The Deerfield Valley is no exception to Virginia's contiguous efforts to build up a fine deer herd for fall harvesting. About 1930, the present crop was seeded by deer transported from Pennsylvania and Michigan, and, through protection and efficient cooperative wildlife management, Deerfield folks are mighty proud of their white-tailed residents today. But ravens are opportunists, and are quite happy with

(Continued on page 18)

ACCIDENTS AFLOAT:



Evinrude Motors photo

THEY CAN HAPPEN TO y o u

By JIM RUTHERFOORD
Radford

WEBSTER defines "accident" as, "an event that takes place without one's foresight or expectation." The definition should give a clue to help prevent boating accidents. If lack of foresight or expectation can cause accidents, it follows that a foreseen or expected event can be prevented.

The Governor's Highway Safety Committee has a slogan: "Drive Defensively At All Times," it says. Boaters would do well to adopt it.

I have recently completed an analysis of Virginia's boating accidents for 1963 which shows that not one of the boating "accidents" was unavoidable, although two of the mishaps chargeable to boating involved heart attacks suffered by middle-aged victims and may just as easily have occurred at home. Another was caused when a teenaged "boat pirate" intentionally ran down his would-be captor. In this case the operator of the pursuing boat was well aware of the hazards involved. These three, then, do not reflect the typical accident picture.

Of the total of 84 accidents reported to the Commission, the remaining 81 were entirely avoidable IF the operators of the boats involved had used normal foresight, caution and planning.

The 50 boat operators who suffered reportable losses racked up a whopping total of nearly \$130,000 in property damage. Twenty-eight people lost their lives and 30 more were injured in greater or lesser degree. It can happen; it has happened and it could happen to you.

Let's explore some of the causes of these unforeseen events.

One 72 year-old man was struck by lightning while fishing. An accident? Open water is a dangerous place in a storm. When the weather threatens, run for shelter.

Fire and explosion caused 5 of last year's accidents. In one case a boat that had just taken on fuel blew up and burned at dockside when the owner attempted to start the engines. Fuel vapor had accumulated in bilges and cabin during the refueling operation and the owner failed to ventilate the spaces before starting up. An outboard boat

exploded and burned when fumes in the fuel tank compartment were ignited by a spark from loose wires on the motor's relay box. The owner fought the flames ineffectively with the single dry chemical extinguisher he had on board. The preventive measures in both cases are obvious.

More than a score of collisions with other craft added to the death, injury and damage total of last season's boating activities. All could have been avoided had the operators been familiar with rules of the road, horn and whistle signals, the handling characteristics of their craft and had they been paying proper attention to the piloting of their craft.

Nearly as many collisions with objects other than boats, or running aground, increased still more the total of boating mishaps. Their causes: straying out of marked navigation channels, inattention, unfamiliarity with the waters used and careless operation.

Reckless operation, not involving collision, resulted in (Continued on page 19)

Observe good fueling practices. Whenever possible, remove portable tanks from boats for filling.

Evinrude Motors photo



Fishin' Holes



Tenth in the series of articles on some of the favorite angling hot spots in Virginia.

SMALLMOUTH MECCA --

THE SHENANDOAH

By DON CARPENTER
Annapolis, Maryland

VIRGINIA can be proud of its smallmouth black bass fishing in the Shenandoah River, just as much as it is proud of its patriotism and ham. All are outstanding. Fishing the Shenandoah is more than a sport; it is a way of life for many. I know anglers who travel hundreds of miles just to wet a line in this famous stream. I have fished the Shenandoah over a period of nearly 50 years.

The fans who love this river have varied tastes in angling. Most favor a stiffish baitcasting rod and multiple-winding reel with such live bait as Mad-Toms (stone cats), suckers or branch minnows, worms, or the tough helgrammite found under rocks. I'm among the few who favor a fly rod with combination fly and spinner lure. Also, sometimes I like to cast plugs, particularly on moonlight nights. Fastest growing group of Shenandoah fishing buffs are the spin-casting tribe who fish live bait or artificial lures with equal zest. It's the easy way to fish, and little skill is needed for long casts.

The main Shenandoah River, from Harpers Ferry upstream to its forks, is large and deep and usually holds very large smallmouth bass. However, at times commercial pollution has caused big fish kills in the main stream, spoiling the sport for months. I prefer to fish the North and South Forks of the Shenandoah, where I have made a number of float trips, leisurely casting with the current. Float trips from Woodstock to Front Royal are quite popular.

I have always found the North Fork the best stream to wade with a fly rod, while the deeper South Fork is the best bet for casting with plugs, live bait fishing, or dunking worms from a "poleing boat," or "john" boat (double-ender).

Aluminum car top boats and canoes are useful for float trips on the river because they are easily transported and handled. In addition to being lightweight, these craft can be easily repaired when damaged by the rocks; need little or no upkeep, and when the hulls contain rigid polyurethane, are almost unsinkable.

The secret of successful hot weather bass fishing on the Shenandoah River is to fish from dawn to sunup, and from sundown to dark or later. Only "mad dogs" and amateur bass fans go out in the mid-day sun . . . particularly during the "dog" days. In real hot weather, when the "bloom" is on the water, the current is slow, and the water temperature is high, all the fish in the river seek shade under the rocks and banks, among snags, and in deep water. Like people, bass and most other kinds of fish are lazy and like to be comfortable.

Clear water is desirable for bass fishing, but can be a liability if it is too clear. I like water that is slightly murky because the fish do not "spook" easily at the approach of the angler or boat. Truly muddy water is only fit for catfishing.

For wading I use non-skid, felt-soled wading shoes with thick socks inside, also old trousers, shirt and wide-brimmed hat. The latter is useful for storing smoking gear, and the band will hold many casting lures, just in case I step into a hole and have to swim. In cold weather I use hip boots or chest-high waders to stay dry.

The complete bass angler can buy and use a lot of gadgets to add to his pleasure. However, I try to stick to the essentials such as a creel or live-fish-stringer, a landing net, bait bucket or tackle box . . . and, of course, a camera. Such niceties as polaroid glasses to see fish in the water during daylight hours, gaffs, water temperature thermometer, electronic "fish-finders" are O.K. for some, but not for me. I do suggest that you carry your camera in a waterproof bag, that you use a floating tackle box . . . and when you put the box in canoe or boat, that you secure it so it can't be lost if you upset in a rapids. When you buy a tackle box be sure it has a patent closing device that does not allow spilled contents when the box is lifted. Plastic bags are useful to protect lunch, extra dry clothing, etc. I find a lightweight foam material refrigerator chest for the boat useful to keep food and refreshments cold in hot weather; and a small piece of ice will last about two days in a \$2 chest.

As for tackle, here are my suggestions: If you like country-style fishing, get a 12 to 15 foot bamboo pole from your sports store, also a hank of 20-pound test monofilament line (30 feet is enough). You can use a cork bobber if you plan to use worms or helgrammites. Some use bucktail jigs on their fixed-line poles to "skitter" for fish with a short line, casting their lures into holes and under banks, or close to snags. This really works.

For live bait fishing you can find a supply of live helgram-

The North Fork is the best stream to wade, while the deeper South Fork is best for leisurely float trips and fishing from canoe or lightweight, car top boat.



mites under the rocks of spring-water streams flowing into the river. This black or brown colored larva of the dobson fly clings to the underside of rocks in clean, cool streams, and is usually more plentiful in Shenandoah feeder streams than in the main river itself. Helgrammites are armed with a pair of strong pincers on the head, so always grab them just behind the head. The tail end has hooks that won't harm you, are used only to cling to slippery rocks. Turn the rocks quickly upstream against the current; if not, the creature will let go, roll up in a ball and drift downstream with the current. Place your bait in a can containing cool, damp (not wet) leaves, and give them plenty of air and shade. They will live for three or four days thus.

Helgrammites are one of the best live bass baits known. They also will take every kind of fish in the Shenandoah River. Helgrammites are also very tough, and one bait can take as many as a dozen fish. When this bait gets "beat up" and ragged, take a small round stick, push on one end until you turn the creature inside out (white side out) and it still will work. Live helgrammites are hooked under the collar around the neck. When still-fished among rocks or trash, it pays to float this bait off bottom by using a small piece of cork about a foot above your hook. I like a 1/0 hook for bass and to discourage small sunfish.

One of the most popular live baits for smallmouth bass is the "Mad-Tom" or stone catfish, a bait that will swim on a hook all day long until battered by a fish, and even then will continue to take several more fish after it is dead. Red-eyes love 'em. But, Mad-Toms are a scarce and expensive bait. Unlike helgrammites that sell for five or six cents each, "toms" sell for 10 to 20 cents each, and are a hard bait to find, say dealers.

Other popular kinds of live "minnies" for bass bait are chubs, fallfish or whitefish, small suckers and many kinds of spring branch minnows, all usually hard to keep in a minnow bucket during hot weather.

If you use one of the new plastic minnow buckets now on the market, you won't have to stop your car and add fresh water so often while transporting live bait. I like a "pal" bucket that lets air into the water . . . or seems to. A belt bait box is useful for carrying live helgrammites, worms, grubs, live grasshoppers or crickets for bait while wading. Artificial lures can be carried in pocket sized plastic boxes.

There is an endless variety of rods and reels available for live bait casting. The bait casting rod should be five to six feet long, with light tip and stiffish action. Glass rods do not usually have the action of a good bamboo stick, but will take an awful beating. Be sure your casting rod has plenty of guides (at least three or four) and a tip top made of hardened metal, so it won't wear and cut your line. Casting reels with a 3 or 4 for 1 line recovery are most useful but, remember, you will get the longest casts if the reel does not have a level-winding device. Level-winders are fine for beginners or for casting at night. Closed-face casting reels do eliminate a lot of backlashes for the inexperienced.

Low-test lines will cast the farthest and are least visible to the fish. For most bait and plug casting you need line in the 8 to 12 pound test class, so you can "horse" your fish out of snags and rocks. I generally add a three foot piece of monofilament as a leader to my regular casting lines (test about 15 pounds). This will save a lot of baits and lures.

Snelled hooks are O.K. for bait casting, and you will find

various sizes of split shot useful in keeping your bait deep.

For spincasting bait or lures a glass 7 1/2 foot rod is very popular. You will get the best rod action if the stick is one piece. The guides should be extra large with the first guide having as large a diameter as your open-face reel. This will guarantee longer casts because your line will flow out without friction on the guides. Plastic reel bands will prevent your fingers from freezing in cold weather, and they won't slip on a cork grip.

If you are a fly casting fan, get a two-piece glass fly rod about eight feet long with a triple taper floating fly line that has a shooting head for distance casting. The best bass fly casting reel is Johnson's Magnetic, with enough room for plenty of line backing. Cheaper fly reels will work, but



The author holds up a nice smallmouth he took on Ultra-Lite spinning gear—2-ounce glass rod and 4-pound test monofilament line.

do not have the anti-backlash feature of the Magnetic. Your fly reel filled with line should "balance" your rod at the forward end of the grip.

As for bass plugs, there are at least 10 thousand kinds, usually poppers, swimmers, teasers and divers. I have found that plugs have the most action when tied directly to the line or leader *WITHOUT* a swivel, or only with a plain snap. Most swivels will throw a plug out of balance and retard the natural built-in action. Popping plugs should be

(Continued on page 18)

ACTS OF ASSEMBLY, 1964

By HARRY L. GILLAM
Information Officer

EVERY two years when the Virginia General Assembly meets in Richmond, proposed and introduced legislation affecting the state's game and fish resources draws its share of debate in committees and on the floor, and its share of wit from the pens of newspaper columnists. The 1964 General Assembly considered about 50 items of legislation affecting game, fish, dogs and boats during their 60 day session. Of these some 30 were finally passed and signed into law.

Many of these legislative changes are quite local in scope or are permissive, requiring further action by state agencies or local governing bodies before they become effective. About 14 of the new Acts can be considered as affecting a substantial portion of the state's sportsmen, dog and boat owners. A few of the bills contained emergency clauses and went into effect immediately, but most became effective June 26.

One of the most vigorously debated and widely publicized changes was the law permitting the use of pistols for hunting game birds and animals west of the Blue Ridge. This fall, hunters will be able to use pistols or revolvers .23 caliber and larger, which develop at least 350 foot pounds of muzzle energy with ammunition thus rated by the manufacturer, for all game (except migratory birds*) west of the Blue Ridge during regular seasons. Pistol hunters will be required to abide by the regular limits and regulations and will be bound by the same restrictions that apply to rifles.

Pistols may now also be legally used for shooting all predatory and undesirable species of birds and animals except at night and over inland water. This is essentially a restoration of that portion of the law as it was before modification by the 1962 General Assembly.

The anguished cries of boat fishermen who were kept off of the state's larger reservoirs and rivers during the two special fire closures by the Governor in 1963 prompted a re-write of this seldom-used section. Fishing from boats is now permitted during these emergency closures provided the boats are launched and landed at an established boat ramp and do not touch shore elsewhere within 300 feet of inflammable vegetation.

The state's boaters seem well satisfied with the change in the Boat Registration Law which makes all registrations from 1964 on, good for three years from the month of issue. The old system of prorated fees and varying periods of validity has been dispensed with by the new system. All registration fees, except those for dealers and manufacturers, will be \$5.00 henceforth and all registrations will be good for a full three years. This also will allow the Commission to process registrations and renewals faster and more efficiently.

To accommodate new residents moving into Virginia in ever increasing numbers on the heels of our industrial expansion, the residence requirement for the purchase of resident hunting and fishing licenses was cut to two months provided certain standards are met. Domiciliary residents may, after two months, execute a certificate of residence

on forms provided by the Commission which, if acceptable, will allow them to purchase any or all of the resident licenses to hunt, fish or trap.

Resident persons 70 years of age and over no longer have to worry about licenses when hunting and trapping on private lands in their county of residence. To hunt or trap on public lands, or beyond the county line, however, will still require a proper hunting or trapping license. Persons 70 and over were already exempt from fishing license requirements.

Sportsmen who hunt on private property do so strictly at their own risk. Although this has long been the intent, the law was rewritten during the last session to eliminate loopholes and weak points. Landowners are absolved from any liability for the personal safety of persons to whom permission has been given to engage in outdoor recreational activities on the premises, provided no charge was made for the privilege. Some landowners had been keeping their property posted to avoid any possible legal entanglements which might arise from use by sportsmen.

Landowners were given additional protection against unscrupulous sportsmen by a rewriting of the section of the law which permits deer and fox hunters to go on posted lands to retrieve their dogs. The stipulation has been added that no weapons may be carried onto the premises. This restriction applies to weapons carried on the person or in a vehicle. This will help prevent the use of this section as an excuse for hunting on posted property.

The permissive section enacted by the 1962 Assembly which permits any county to prohibit, by ordinance, deer hunting within 100 yards of highways was modified to allow the prohibition of all such hunting if desired. This still requires passage of a county ordinance by the Board of Supervisors to this effect.

The Game Commission was given the authority to charge up to \$3 per day for waterfowl hunting on its Pocahontas and Trojan Marsh properties in Virginia Beach City and on others that may be acquired in this area in the future. This will help defray the cost of specialized management measures and relatively expensive equipment installations such as blinds and shooting rigs to be used on these areas.

The Commission was also given the authority to negotiate reciprocal license agreements with adjoining states on any non-tidal interstate waters. The authority was previously limited to impounded interstate waters. This will allow the development of reciprocal license agreements, similar to the existing agreement with North Carolina on Kerr Reservoir, on interstate portions of the Roanoke River, and on other streams which flow between Virginia and adjoining states.

Cities enforcing their own dog laws may now set their own license fees not to exceed \$5.00 per dog, a privilege that counties have enjoyed for some time. This will alleviate some of the financial inequities that have developed between cities and surrounding counties. Cities also may now retain fines for violations of local dog ordinances, as do counties.

Cities and counties enforcing their own dog laws may now set a single license fee for all dogs, regardless of sex, and may procure, issue and account for their own tags without involving the state Game Commission.

* Only shotguns and longbows may be used for taking migratory birds, according to federal statute.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

NEW PUBLIC HUNTING AREA TO BE OPENED IN LYNCHBURG-ROANOKE AREA. A new 5,000 acre public hunting area located south of the mid-point between Lynchburg and Roanoke will be opened to Virginia sportsmen this fall, according to Chester F. Phelps, Executive Director of the Commission of Game and Inland Fisheries. The Commission will manage the area for wildlife through cooperative agreement with the Appalachian Power Company who offered to make this land, part of the property involved in their Smith Mountain Hydroelectric Development, available for this purpose.

The land is mainly wooded and will offer hunting for deer, turkeys and squirrels this fall. Quail and rabbit hunting opportunities will be quite limited by dominant forest cover. Approximately 4,000 acres of the tract are located in Pittsylvania County and 1,000 acres lie in Bedford County. Under the terms of the agreement, the Commission will develop management plans for the area and hunting and fishing will be subject to Commission rules and regulations.

ROCKFISH FRY STOCKED IN SMITH MOUNTAIN. Approximately 400,000 rockfish fry produced at the Game Commission's temporary hatchery facility near Brookneal have been released in Smith Mountain Reservoir. Spawning adult rocks were carried over the dam and released in Leesville Reservoir last spring.

The release of the fry in Smith Mountain this year completes the commission's immediate rockfish stocking plans for these new reservoirs. The Commission is concentrating fry stocking efforts on new reservoirs where the tiny fish have the best chances of survival. The first of a planned introduction of 1 million largemouth bass fry have already been released in Smith Mountain Reservoir.

Another 100,000 rockfish fry hatched at Brookneal were shipped to the Pennsylvania Game Commission in exchange for muskellunge eggs received earlier. A few of the rockfish fry are being reared experimentally at the Commission's Front Royal fish cultural station.

The rockfish spawning and hatching experiment was considered moderately successful. The administration and dosage of hormones used to induce spawning was found to be critical and can affect the fertility and hatchability of the eggs. Fishery technicians feel that if eggs can be hatched in this manner and successfully reared to fingerling size at State facilities, the larger rockfish may be able to hold their own when introduced into reservoirs with established fish populations. Fry stocked under these circumstances don't seem to be able to compete as well as fingerlings and therefore are used only in stocking new impoundments.

MUSKY EGGS HATCHED AT FRONT ROYAL. The Commission of Game and Inland Fisheries is hatching 50,000 muskellunge eggs at their Front Royal Hatchery as a pilot project to test the feasibility of obtaining fingerlings in this manner for stocking new reservoirs. Initial hatching success has been good, but it takes the tiny fish about 12 days to reach the free-swimming stage.

The Commission plans to rear the muskies to a 3-5 inch size for release in Smith Mountain and other new reservoirs. The eggs were obtained from the Pennsylvania Fish Commission.

The WESTERN on the EASTERN sh...

Text and Photos by Haycox Photoramic, Inc.



TWO OR THREE DAYS before the auction, the wild ponies are rounded up by volunteer firemen and herded into pens on Assateague Island.



TOO YOUNG TO KEEP UP WITH THE HERD, a week-old colt is carried by Donald Leonard, roundup chairman.



AFTER THEIR SWIM to Chincoteague Island, the ponies are herded down the main street to the fairgrounds where some will be auctioned off the next day.



THE PENS ARE PACKED with wild ponies before their swim to Chincoteague Island.



SOME BRAVE YOUNGSTERS try feeding the ponies while other people move in for a closer look.

"WHO"

A Virginia Indian-named island echoes to the yipee-ki-ya of cowboys during annual roundup

Wild ponies roam the uninhabited dune and marsh barrier island of Assateague on Virginia's heretofore isolated Eastern Shore. Late in July each year they are rounded up by the firemen-turned-cowboys of the Chincoteague Volunteer Fire Department and sold at auction during a week of carnivals and gala festivities. This annual event has been going on for decades and has been sponsored by the firemen since 1930 as a means of supporting and expanding their facilities.



ON ASSATEAGUE ISLAND the wild ponies rest peacefully in the ocean breeze, before the 1963 round-up.

The story of the watermen and their annual roundup has been made world famous by Marguerite Henry's book, "Misty," and the motion picture of the same name produced by Twentieth Century Fox.

The opening of the Chesapeake Bay Bridge Tunnel last April will end the comparative isolation of the eastern peninsula as thousands of cars daily make use of the speedy north-south link. This new link is expected to bring a record number of visitors this year to the picturesque fishing village of Chincoteague.



"WHAT?" ask the excited little colts, waiting for their turn on the auction block.



WILD PONY RIDING adds excitement to the thrilling day before the auction.



"WHAT AM I OFFERED for this little fellow?" asks the auctioneer, as the auction begins early in the morning.



HUNDREDS OF PEOPLE watch and bid on the colts in the warm July sun.

REPORT ON THE RAPIDAN

By COL. STEVE SALTZMAN
Maxwell AFB, Alabama

A QUIET pool. Early morning. August. An 18 blue dun feathers down to the head of the pool, floats back spraddled cocky and riding high. There's a sudden movement from the stream bottom. A white mouth slashes at the fly. A slight stiffening of the line and the quiet ends. Twenty inches of astonished rainbow runs and jumps and burrows, spooking swift shadowy fish all over the pool.

The North Woods? Canada maybe? Wrong! The scene is 90 miles from metropolitan Washington, D. C., where wilted citizens swelter in summer heat. The stream is Herbert Hoover's old escape hatch—Virginia's Rapidan River—where an exciting experiment in fishing for fun is in its fourth season.

No matter how you look at it, "fish for fun" pays off all around. The expert fly fisherman gets action with good fish all season long and close enough to home to wet a line any time he can take a day off. The state breaks even on costs, maybe even picks up a few dollars. And the stream provides a training ground for beginners, introducing them to trout fishing and teaching them conservation habits that will benefit them and fishing for years to come. They learn that the sport is in the stalk and the play, not in bringing home a couple of dried fish.

Take a state like Virginia, for example. Though not often thought of as a trout state, about 200 streams draining the mountains in the western parts provide fairly good fishing for stocked rainbows and natives. The rainbows don't survive the onslaught of worm dunkers and the brookie population is so large the competition for food keeps them all undersized. So how does the Virginia trout fisherman get a chance to hang heavy fish? For that matter, how does he even get to fish for trout after the put-and-take streams are emptied? He fishes for fun from early April until mid-October.

In a single season 752 fishermen reported to the Rapidan's Creel Clerk Lindsay Utz that they had caught 1356 rainbows and 1699 brooks at an average rate of 8/10ths fish per hour per trip. The biggest brookie caught in 1963 ran 16 inches, but 589 of them went seven inches or better. Throughout the six-month season better than 82 per cent of all fishermen took fish. An unseasonably dry and hot summer ran the water extremely low during the year, but even September—the low statistic for the whole season—produced fish for 74 per cent of all parties. There aren't

many wild streams that can match these figures. I don't know any put-and-take streams that come close.

Now the Rapidan isn't one of those streams where you have to elbow your way past the customers to get to the water. Bear and deer sign are everywhere. The ground cover is clean, even during heavy rain. The stream flows through reasonably wild forested country, dropping out of the Blue Ridge in a series of small riffles and respectable pools. The better parts of the stream are reached only by walking, so you aren't fishing with parked cars behind you. In five trips I never encountered more than six rods on the stream at one time. Records show there were only 31 fishermen on the stream last opening day! Three miles of stream inside the Ward-Rue Management Area plus several miles in the Shenandoah National Park below it give plenty of elbow room for this kind of fishing pressure. Capping these bonuses, the type of fisherman who fishes the Rapidan has enough respect for the woods and the stream to watch his litter.

Most fishermen who haven't tried the Rapidan take the view that it offers a kind of hatchery atmosphere. They change their minds after you drag them out for a trial. The fish are selective and spooky. The 1963 plant—distinguished by clipped fins—were as tough to catch last season as the 1961 and 1962 fish. The stream is in the woods but there's plenty of room for casts except for an occasional tricky spot. After a day of playing rainbows that run from 12 to 22 inches, with the average running 15 inches, you have to remind yourself that you aren't off on some wild stream in the West.

How many rainbows this size will a small stream support? Bob Martin, Chief of the Fish Division, Virginia Commission of Game and Inland Fisheries, told me that the state has stocked 300 two-year-old rainbows in both 1961 and 1962, 100 in 1963 and another 100 in 1964. He said that planting at this relatively low rate has been necessary to keep the fish in excellent condition since natural mortality is at a minimum. Some of us who have fished the Rapidan, however, felt the rainbows were running a poor second to

Ninety miles from metropolitan Washington, D. C., where wilted citizens swelter in summer's heat, flows the Rapidan River where an exciting experiment in fishing for fun is in its fourth season.

Commission photo by Kesteloo





Commission photo by Cutler

A stream that holds trout up to 22 inches all summer long.

the natives when it came to cornering the available food in low water. Some rainbows got noticeably thinner toward the end of the season and a few offered a disappointing fight. Statistically, the average rainbow was caught and played at least twice during the season, although you would probably find if there were a way to check that some of the more aggressive fish were hung five and six times. So you can't really judge whether or not the rainbows that were looking poor were those that had been caught and released so often they got to the point where they didn't trust even natural food.

This hasn't been an expensive project for Virginia. Enforcement is handled by park rangers and by Bob Crigler, the local warden. The fish cost is difficult to determine since they are actually surplus brood fish from the state fish cultural station at Marion. Bob Martin thinks they would probably cost \$3.00 to \$4.50 apiece if they were bought on the open market.

Fish biologists report that there are signs the rainbows have been wintering fine and are starting to reproduce. But they also say there is some human predation. This is understandable.

The Rapidan was the kind of stream where a local farmer could count on picking up a nice mess of brookies in a couple of hours any day in the year. They've been doing it for years. Human predation may be coming from them, and it may be coming from the occasional angler who can't resist sliding just one inside his shirt.

Regulations for fishing the area are straightforward and there isn't someone hanging over your neck to check up on you every time you turn around. You must have a proper fishing license and trout license, or a special trout license

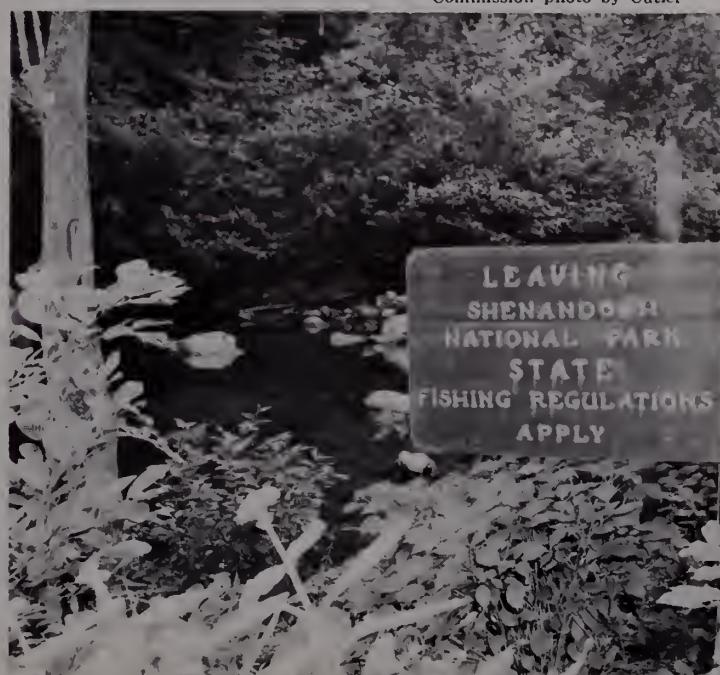
which may be used inside the Park only. You can't have any fish in possession inside the area. And you must fish with artificial lures and a single, barbless hook, releasing the fish immediately after catching them. Just pinching the barb of your hook doesn't count; you must file it smooth.

Well, that's "fish for fun," Virginia style. It's Virginia's answer to a booming population and growing demands on sport fishing resources. Similar projects predate Virginia's in Pennsylvania, in Yellowstone National Park, and in Smoky Mountain streams in North Carolina and Tennessee. There are other places where similar projects could be started with sufficient pressure from sportsman and conservation groups. States where trout are plentiful under natural conditions may find that "artificial lure only" streams fill the bill for them. "Fly fishing only" discourages many fishermen, and a stream like Michigan's Au Sable probably could never be fished out. But where trout fishing is marginal, where it is put-in-March, take-in-April, dead-in-May, Virginia's fish-for-fun experience might be put to good use.

I used the Rapidan to introduce fly fishing to three young neighbor boys, and to what until then had been a perfectly good wife. Now all of them are experts and want to be off to the great wilderness where they will tame every trout they can get a line over. I really never thought of trout fishing as an experiment in togetherness, but as a matter of fact it can be gratifying. A bunch of men around a campfire or in a light housekeeping cottage honestly can't compare with the woman's touch. (NOTE: Sorry to say this, fellas. But last year, Charlie, you conked out on me at the last minute on a planned trip to Michigan. The year before it was Joe on a trip to the Bridger Wilderness Area in Wyoming. One thing I know. When the old girl and I plan a trip, we go.)

So fish for fun can be many things to many people. Besides, fishing pressure being what it is, public trout fishing is dwindling fast. With the trend to a three-day week and every other man being a millionaire it shouldn't be very long before the people who print those "No Trespassing" signs will be enjoying a boom. They could print another sign for the remaining open waters—"Sorry, Fished Out." Neither of these signs will be needed on the Rapidan.

Inside Shenandoah National Park a special three-day trip license may be used to fish for trout in lieu of regular fishing and trout licenses.
Commission photo by Cutler



these restocking programs also. Of course, now more deer are killed every year by hunters, barbed fences, and autos. Deer carcasses to the ravens are prime carrion "par excellence" as evidenced by their gregariousness during and after the deer season around this offal.

The northern raven is also the Diogenes of the bird world, requiring great expanses of forest to satisfy its sedate demeanor, sometimes removed by man's encroachment. Westinghouse, du Pont, and the American Safety Razor Companies all have built new plants in the vicinity of Staunton, Virginia, which indirectly is a blessing to the raven's welfare. Their wages certainly are more attractive to the *small scale* Deerfield tiller who formerly worked his stripped ration of land with little or no profit margin. Therefore, an egressive trend to the city from the country has been established lately, leaving the raven more ascetically at home in the resultant second-growth environment.

Analogous to the above, is the practice of general selection in contrast to clearcutting, formerly exercised by private lumber concerns before purchase of the George Washington National Forest by the U. S. Forest Service in 1920. Selective cutting (leaving the tolerant species) essentially means a more continuous and wilder forest, a condition almost paramount for raven survival.

In addition, Mr. Robert Strosnider, a U. S. Forest Service Ranger stationed in Staunton, Virginia, tells me that fire control in the mountains above the Deerfield Valley (George Washington National Forest) has never realized a better record. This is particularly true in the spring when most normal ravens are assuming their domestic responsibilities. These corvids will nest in trees as well as on sheltered ledges, which indicates the need for efficient fire control if they are to successfully rear their progeny.

Mr. Clemmer L. Miller, retired Supervising Game Warden of the Thomas Jefferson District, regards the existence of forest road surveyors in the National Forest as a furthering aspect of ravenhood also. Mr. Miller has often observed flocks of "absurdly tame" ravens at noon, patiently awaiting these foresters' return to work, enabling them to swoop down and scour the area for lunch scraps. He has usually noticed this phenomenon near Hankey Mountain in "the North River Country."

And finally, reference must be made to the raven's omnivorous propensities. Primarily a meat and carrion eater, it often devours assorted legumes, seeds, and fruits out of necessity. For example, Mr. R. E. ("Country") Christian notes the feeding activities of ravens around the newly established Deerfield garbage and refuse dump, as well as their anomalous samplings of corn and suet in his own backyard.

It certainly is no secret to the Deerfieldians that this largest and most historic of all passerine birds is holding its own in their land, and apparently is manifesting an increase. Does this healthy sign of bird life really mean the heavens will soh more than ever? I can't say, but the strident almost penetrating *cr-roak* of the northern raven goes on unnoticed now, merely descending from a common bird, perhaps leading a queue of ebony youngsters to Reddish Knob from Elliott Knob; and yet, unscathed by the authoritative threads of pessimism running through such classics as *The Quiet Crisis* or *The Silent Spring*.

worked fairly fast with the rod tip up high, while swimmer plugs are usually worked slowly with the top tip held close to the surface of the water. Deep diving plugs can be cast or trolled.

A good combination hoss bait is the popping plug with a bucktail lure trailing behind on a 12-inch piece of monofilament tied to rear end of the popper. This pop 'n jig lure will catch both large and small game fish. The forward plug makes a noise and fuss in the water attracting fish to the bucktail which usually gets the most strikes, although I sometimes catch "doubles" or two at a time with this combo bait. Plugs with metal spinners at either or both ends work well in the Shenandoah. I like the cigar-shaped floating kind weighing about a half ounce. Bass like a wide range of colors in plugs, and a bit of red seems to attract a lot of bass. Natural scale finish on a plug works also. New tenite plugs are tough and growing in popularity.

Spin casters favor a wide variety of bucktail and spinner combination lures. They like wobblers, small spoons, dart lures; rubber worms, crawfish or frogs; and weighted flies for their bassing. Some of the best metal spinning lures are made overseas.

The best all-around bass fly casting lure I have found for the Shenandoah is a black gnat fly 1/0 or 2/0 hook with a double-blade spinner in front of the fly, set in beads, so it will spin no matter how slowly you move the lure through the water. I also like to fly cast with cork-bodied bass bugs and poppers. I find that streamer flies worked across-current and downstream take a lot of red-eyes.

When fishing with live bait, never cast upstream or you will lose your bait and tackle among the rocks. Rather, cast across or downstream to avoid hangs. If your bait does hang when cast downstream, you can usually free the line by letting out some line slack into the current. Wait until it pulls tight, then give your rod tip a jerk and the downstream slack line will pull your bait and hook free.

Always string your catch through the lower jaw only, so they can breathe and live longer. Don't string the fish through both lips or the gills.

Amateur fishermen should be warned that it is illegal to trespass on private lands in Virginia, and the Shenandoah river is no exception. You can make float trips without trespass, so long as you stay in the boat and leave or take off and land where you have permission. You will also need a current Virginia fishing license. I suggest that you get your boats from a rental livery, where permission to fish is always given. I find that renting a room and taking meals from property owners along the river is a sure way to get legal permission to fish. It will pay you to first scout out good places to fish, where permission is assured, *BEFORE* you plan a regular trip.

In conclusion, it should be said, "that inch for inch and pound for pound, the smallmouth black bass has few equals in the fish world." When you experience the explosive speed of a hungry red-eye you will know what sport is. When you find the going worse than slow, you will learn that smallmouth bass can be very fickle. All this adds up to the lure that leads me back to this famous stream, the Shenandoah—smallmouth mecca.

Accidents Afloat

(Continued from page 9)

22 of the mishaps. These included "passengers falling from foredecks of small boats underway, drivers falling from small boats while sitting on gunwales during operation or executing maneuvers, running over another's ski tow lines causing injury to skier in the water, swamping of small boats by the wake of carelessly operated larger ones or small boats crossing the wakes of large boats, capsizing of small boats due to overloading or careless moving about." One boater had his craft capsized while attempting the rescue of passengers of another capsized boat. Several of the rescued individuals moved aft in the rescuer's boat to take another member of their party aboard. The excessive weight in the stern swamped the boat and sank it. Another man was severely injured when, leaving his motor in reverse gear with the throttle about $\frac{2}{3}$ open, he attempted to crank it. The motor started, throwing the operator over the transom and into the knife-sharp blades of the propeller.

Boats were damaged by running into piers, pilings and people. In the latter cases, damage to people was consider-



Evinrude Motors photo

You don't just hang on to a flotation device when you have to go overboard; you wear it. Since accidents can happen, be sure everyone on board knows how to use safety equipment properly.

able, as shown by the reported 28 fatalities and 30 injuries.

There were some "freak accidents" too, but they were *not* unavoidable. In one case the drinking driver of an over-loaded boat, thinking his boat had sprung a leak, made a sudden stop. The resulting backwash came over the transom to flood and sink the boat.

In another case a boat that had just dropped its skier dragged its tow line across a skier in the water behind another boat. The line entangled the skier, pulling her under her own tow boat. Injuries: three fractured neck vertebrae, lacerations and multiple rope burns.

All of these "accidents" were the result of recklessness, carelessness or, as Webster would have it, driving without expectation or foresight of what can happen; without foreseeing a dangerous situation; without planning to keep out

of such predicaments rather than unexpectedly getting into them.

Weather accidents are avoidable by carefully checking the weather before your departure and by keeping an "eye" on the weather during the day's activities. On large waters a portable radio receiver, tuneable to marine and aircraft bands, can be a valuable source of information as well as an instrument of entertainment. In sudden squalls the radio may help you to maneuver nearer to larger vessels in case an emergency causes you to need assistance. When weather threatens, require everyone in your small craft to don life preservers. Require any persons who cannot swim, and all youngsters, to wear lifesaving devices at all times when on board.

Stay clear of other boats, large or small. A large boat may swamp you with its wake. A small craft may have a line out that can foul prop or rudder or cause you to inflict injury to others.

Observe good fueling practices. Liquid gasoline itself is not dangerous. The fumes, however, when mixed with air can cause devastating explosions. Mop up all fuel spills. Use your blower, or other ventilating devices, to purge the boat of vapor before attempting to start engines. Don't smoke around refueling stations or at any time when vapors may be suspected. Whenever possible, remove portable fuel tanks for refilling. Keep all electrical connections tight and solder and tape all splices to prevent sparks. Prevent static electrical sparks by grounding the fuel system and always keep the spout of a fuel hose *in contact* with deck plate or filler opening when pumping gas aboard.

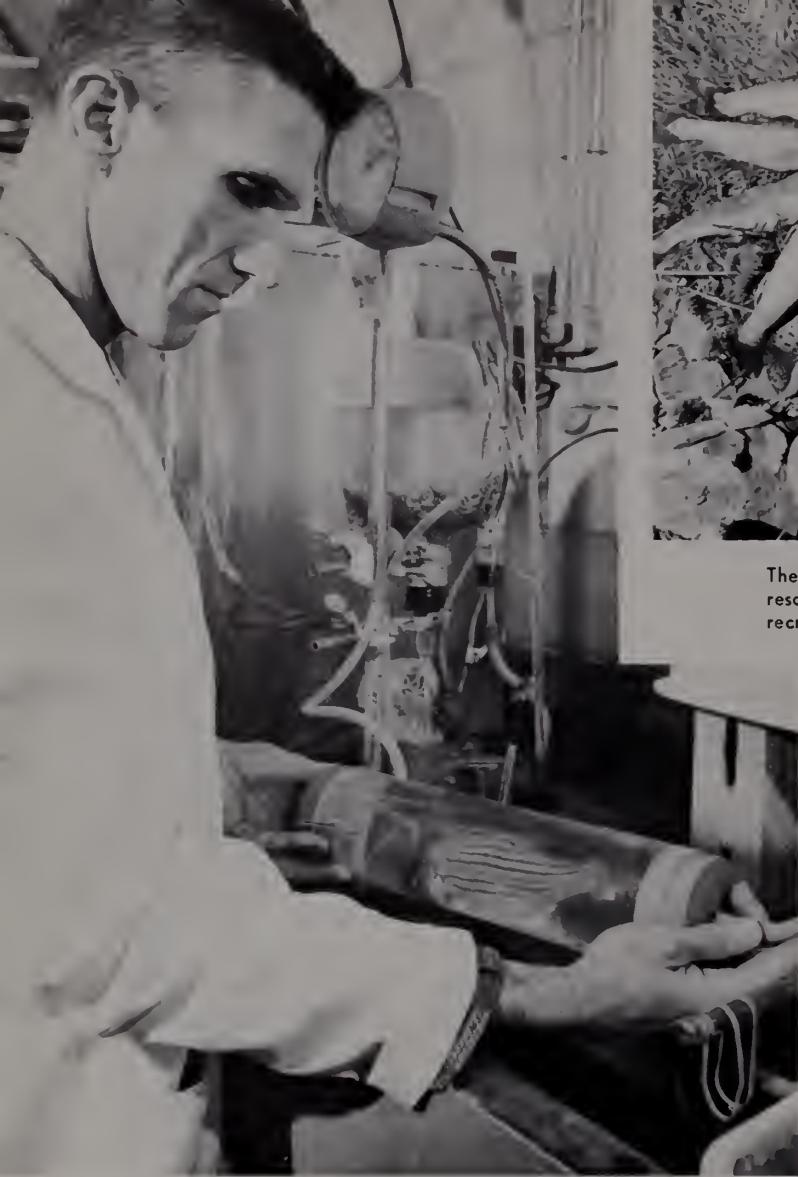
Know the rules of the road and the approved whistle or horn signals so well that you will automatically respond properly in case of emergency.

Don't press your luck by overloading or overpowering. A heavily loaded boat is a dangerous one. It is less maneuverable; takes longer to stop or back down, and a shifting load of human cargo can swamp or capsize the craft. Joining the horsepower race can make an otherwise docile craft a dangerous one. Overpowered boats may porpoise or leap, blocking visibility. They may be dangerous in turns and maneuvers. Increasing power above design limits never results in a significant increase in speed, only an increase in operating costs and an overpowered boat is usually a "mean" boat.

Since the inauguration of the Virginia Boating Safety Act, in 1960, and the enforcement of the regulations by the Commission of Game and Inland Fisheries, the boating safety picture has reflected a slow but steady improvement. In 1962 there was a total of 110 accidents involving 123 boats. Last year the figure dropped by 26 in spite of the fact that more boats were in use. But 21 persons lost their lives in 1962 boating compared with 1963's 23, while injuries rose from 21 in 1962 to 30 the following year. Property damage was down by nearly \$23,000 from the 1962 total of \$152,000.

But even one fatality, one injury or one boat lost is one too many.

A thorough knowledge of one's boat, proper safety equipment and careful, common-sense safety practices can eliminate these foreseeable or to-be-expected situations afloat and make boating more fun for everyone concerned. Plan ahead for YOUR safety!



Virginia Institute of Marine Science photo by Bailey
The Institute of Marine Science studies the effects of contaminants on marine life and on the marine environment itself. Here a staff member studies oxygen utilization by a fish exposed to polluted water.

Environmental Health

(Continued from page 5)

Interests and responsibilities of state agencies in the field of environmental health are many and varied.

The State Board of Health makes and enforces regulations for the promotion of public health, and the Health Department carries out inspections, evaluations and controls in the enforcement of such regulations. The Health Department is responsible for monitoring the sanitary environment and public water supplies, for testing milk

Virginia Tech's College of Agriculture seeks to discover methods to control all factors that limit food and fiber production, and disseminates recommendations as to proper use of chemicals and other agents in production and handling of farm commodities.

Commission photo by Kesteloo



Commission photo by Shomon
The Game Commission is responsible for managing wildlife and inland fishery resources, and for providing opportunities to use these resources for wholesome recreation. Whatever affects these wildlife resources or their utility is a concern of the Commission.

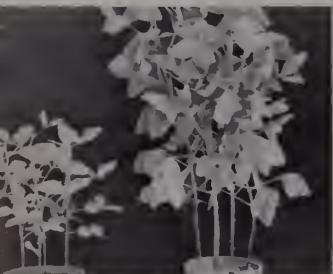
for antibiotics, and for checking business and industrial establishments for physical and chemical health hazards. It tests air, rainfall, estuarial waters, shellfish, silt and seaweed to assess increases in radioactivity; and does some monitoring of the atmosphere to determine concentrations of non-radioactive contaminants as well.

The Water Control Board has the primary responsibility for maintaining quality of state waters satisfactory for the many uses which are made of Virginia's streams.

The Department of Agriculture is responsible for consumer protection through inspection and laboratory analysis of a wide range of products. It checks for harmful residues, pesticides and other contaminants in the environment and in the various human and animal foods offered for sale in Virginia.

Virginia Polytechnic Institute's College of Agriculture is responsible for teaching, research, and agricultural extension educational programs. Through research it seeks to discover methods of control of all factors which limit food and fiber production, storage and processing. Through its agricultural extension program it formulates and disseminates recommendations as to proper use of chemicals and other agents in the production, storage and processing of farm commodities. In its teaching it trains future scientists, farmers and technicians in their roles in both on-farm and off-farm operations in agriculture and allied industries.

Within the Department of Conservation and Economic Development the Division of Water Resources is responsible for promoting the wise use and intelligent development of



Statement of Policy

"The ability of the earth merely to support its present human population, to say nothing of its ability to sustain standards of living we now enjoy and those to which we aspire, depends upon man's own ability to manipulate his physical environment. In manipulating his environment, however, man also runs a risk of inflicting damage to himself and his surroundings which, in the long run, may cancel or perhaps even overshadow temporary advances that may be made. This is a risk that must be weighed, and sometimes accepted as the price of material gain. As human populations increase at the present rate, and as efforts are made to satisfy rising expectations of further material gains, the hazards entailed in vast expansion of environmental manipulation and contamination increase alarmingly.

"Greater crop yields per acre, greater industrial production, and greater energy releases are demanded, and all may add to environmental contamination. All may set in motion physical, chemical and biological processes, potentially detrimental to man and his overall environment, which may turn out in the long run to be irreversible.

"The effects of direct exposure of man or other organisms to toxic substances are the most readily observed of the detrimental results of environmental contamination. Long range cumulative effects of insidious environmental changes are potentially the greater hazard, by far, precisely because they cannot be readily observed, measured, and assessed. It is no exaggeration to say that, if such changes are ignored until they become manifest to casual observation, they could finally be fatal to the human race. Concern with environmental contamination is not limited to citizens of local areas, or members of special interest groups. It has become a universal problem, of first magnitude.

"Decisions regarding the instituting and monitoring of projects and activities that effect significant alteration or contamination of the environment must reflect due consideration of both advantages and hazards. Federal and State laws and administrative procedures are intended to insure that reasonable consideration of both go into the decision making process. So far, it is apparent that considerations of safety have not been as well based as considerations of immediate advantage, and that a full appreciation of the hazards involved must await the outcome of further basic research in toxicology and ecology. In the meantime a conservative and cautious policy should be pursued in all matters concerning environmental health. If errors are to be made, let them be made on the side of caution and safety.

"Programs and activities conducted, recommended, approved, or in any other way sponsored by a government agency should be models of correct practice, not only because of the responsibility of these agencies for their own actions but also because of the influence which the activities of government agencies have upon the private sector of the community. Whether contamination results from disposal of waste materials, or from the purposeful introduction into the environment of toxic chemicals or radiation sources, attention must be given not only to immediate economic or other advantages but to associated environmental hazards as well. With respect to the purposeful introduction of toxic substances into the environment, emphasis should be away from broad spectrum persistent chemicals which are most likely to produce a multiplicity of side effects, and toward the use of more selectively toxic chemicals, nonpersistent chemicals, selective methods of application, and the substitution of non-chemical control methods wherever feasible. To control the accretion of persistent toxic substances in the environment should be one of our main goals."

the Commonwealth's water resources.

The Commission of Game and Inland Fisheries is responsible for management of the state's wildlife and inland fishery resources, and for providing people with opportunities to utilize these resources for wholesome outdoor recreation. Whatever affects the environment and welfare of wildlife and fish resources, for better or for worse, is of concern to the Commission; and whatever affects utility of these resources for recreational purposes is of equal concern. While the Commission has not the regulatory powers of other agencies over the introduction of pollutants and contaminants into the environment, nevertheless, alterations of the environment bear directly upon the success with which the Commission's responsibilities may be discharged.

The Virginia Institute of Marine Science is responsible for studying the effects of natural and man-made contaminants and pollutants on marine life and the marine environment itself. The Institute conducts research to develop means of controlling marine pests, and occasionally this involves the use of chemicals which, like terrestrial pesticides, pre-

sent problems relative to the maintenance of good water quality and affect producers and users of marine products, particularly seafoods.

The Board of Pharmacy regulates the practice of pharmacy and the distribution of all prescription drugs, medicines and devices within the state.

No agency of government in Virginia claims pre-eminence in the broad field of environmental health, and indeed none can, for the relationships between our society and its physical environment span virtually all phases of human endeavor. Environmental health factors are inextricably meshed with natural resource utilization and conservation; with population growth and movement; and with the rising tide of human expectations for material progress. Coordination among many agencies of government is required if an optimum physical environment, consistent with man's other needs and aspirations, is to be achieved. A mechanism for accomplishing that coordination has been established in Virginia in the Inter-agency Committee on Environmental Health.

Small Turkey Crop Forecast For '64

(Continued from page 7)

the relative abundance of a fall turkey population and the young-to-old ratio on the same range the previous year. In no case has the harvest gone up, or even remained near level for that matter, following any hunting season in which young turkeys made up less than 60% of the recorded bag. There seems to be a solid reason for this, based on elementary arithmetic.

We do not know just what fraction of a wild turkey population ordinarily is taken by hunters in a normal fall hunting season, but suppose we assume for a moment that hunters succeed in bagging about half of the turkeys present on a certain range. Let the total opening day turkeys number 1200 on this particular range, 600 of which are old birds—the year's breeding stock that produced the fall population of 1200. If hunters kill half the turkeys, natural mortality factors must inevitably reduce the remaining stock to a point well below the 600 breeders that were in the fall population of 1200. With a shortage of breeding stock the next fall's population can be expected to be down even if nesting success is considerably improved.

Now suppose that the fall turkey population on this same range had been made up of 600 breeders and 1200 birds of the year (67% juveniles). If hunters killed half (900), another two hundred might be lost to normal attrition and still 700 breeders would be carried over which, with equal nesting success, would be sufficient stock to produce a new fall population of 2100 birds, for an increase of 300 in spite of hunting and natural mortality. Somewhere in between the 1-to-1 and 2-to-1 ratios (apparently at about 6-to-4) lies the juvenile-to-adult ratio required just to sustain level fall populations and harvests.

"Rules of thumb" are not always reliable in game management. Certainly it is true that other factors *can prevent* a wild turkey increase following a year in which a favorable young-to-old ratio has been achieved. But both logic and the pragmatic evidence of the data before us indicate that a mere one-to-one juvenile-to-adult ratio in a fall population exposed to normal hunting pressure is not going to be followed by any increase in the number of turkeys on that particular range the following year. This is why game biologists insist that hunting pressure has to be restricted until after improved nesting success has replenished the depleted breeding stock on most of Virginia's turkey ranges.

Now let us go back to the statistics once more, and look at the 1963 results in the column on the far right. If 60% is indeed a "magic" juvenile population component, then only the Central Mountain range shows any sign of providing improved turkey hunting in 1964. The Northern Range with 55% may not be far off, but the population has not been able to sustain itself with a comparable ratio for the past several years. The figures for the other three ranges have dropped so far below the mere sustaining ratio of around 60% that they are positively frightening. Unless all indications are completely misleading, no spectacular recovery of the wild turkey in these ranges can be expected this fall. The most that can be hoped for is an excellent breeding season and an improved young-adult ratio this fall that could pave the way for the beginning of a real recovery in years to come.

REGENERATION OF LOST PARTS IN ANIMALS

By DAVID H. THOMPSON

FOR ages, mankind has been fascinated with the idea that lost parts of animals can be regrown. According to Greek legend, one of the twelve "labors" of Hercules was the destruction of the Hydra, a gigantic monster with nine serpents' heads. Finding that as soon as one head was cut off two new ones grew in its place, at last he burned out their roots with firebrands.

All animals have the power of regeneration to a greater or lesser degree. In man and higher animals it is quite limited. We see it most often in the healing of wounds and the mending of bones. A lost fingernail can be replaced but not a lost finger. Lower animals have a much greater ability to replace parts. For instance, the little half-inch flatworm, *Planaria*, that lives under rocks in clean creeks can be cut into as many as 32 pieces and each fragment is able to rebuild a miniature flatworm complete with head, tail, eyes, mouth and internal organs.

One of the most striking examples of regeneration is found among the common crayfishes of our streams and lakes. An individual with unequal claws or pincers, or with one of the eight walking legs smaller than its mate, means that one has been lost and is being replaced.

The entire process of regeneration can be watched in the schoolroom or laboratory. Select a very small crayfish because young ones grow rapidly and molt their shells often. Remove a leg or a pincer. Keep in a gallon jar with a half-inch of clean water and feed small bits of raw meat. With each molt the lost part grows larger and soon reaches normal size.

The crayfish has an unusual "breaking joint" near the base of each claw and leg which is a safety device. When grabbed by a fish, snapping turtle, bird or other enemy, it merely twitches a special muscle, the joint breaks and the crayfish escapes. Some lizards (including the famous "glass snake" which is really a legless lizard) also have a breaking joint which allows the tail to drop off when it is seized. A new tail is regenerated but it lacks the backbone of the original tail.

The common earthworm or nightcrawler of our lawns, gardens and bait cans, has a body made up of a series of 100 or more segments marked off by shallow grooves. If the worm is cut in half, the head can grow a new tail. The tail end, if it lives at all, grows another tail instead of a head and eventually starves to death. If only 15 or 20 segments of the head end are cut off, they are replaced by a new head with but with five segments.

Embryos and young animals regenerate lost parts much more readily than adults. For example, the rudimentary hind limb of a frog tadpole can be replaced while the leg of an adult frog cannot.

Theories explaining regeneration have been a battle-ground among zoologists and physiologists for more than a century.

Bird

of

the

Month:



Spotted Sandpiper

By J. J. MURRAY
Lexington

ONE day last January my wife and I were swimming at Manzanilla Beach on the island of Trinidad, just a few miles off the coast of Venezuela. That day we saw many strange birds—man-o'-war birds, parrots and parakeets, jacanas and jacamars. We had heard the plaintive whistles of tinamous in the jungle and the ringing anvil-notes of elusive bell-birds. Now at the edge of this alien surf, brown with the overflow of the Orinoco estuaries, we met an old friend, a little spotted sandpiper, bowing up and down. Maybe last July this sandpiper was doing the same jerky bowing on the banks of Whistle Creek at our Rockbridge County cabin. This sight of one of our own birds in a faraway land moved us with a gentle nostalgia.

The spotted is one of our most widely distributed sandpipers. In summer it nests from northwestern Alaska down to the mountains of central Arizona and on our eastern coast down to Virginia. In winter some can be found along the southern borders of the United States, although most of them have gone on southward, some as far as northern Chile and southern Brazil.

In the nesting season in Virginia it is found somewhat uncommonly in Tidewater and much more frequently inland. In my experience in the Valley of Virginia it prefers the pebbly beaches of streams to the shores of ponds and lakes, but it is almost never found far from water. It has the habit of flying out over the hayfields and wheat stubble

and lighting on fence posts.

The spotted is a medium-sized sandpiper, seven to eight inches from tip of bill to tip of tail, the male, as is the case with most species of birds, averaging somewhat larger than the female. It is grayish-green on the back, with a dark line through and a wider white line over the eye. The best field marks are the beautifully white under parts, dotted with small round black spots where most shore birds have streaks.

The nest is a slight depression, with a simple lining, usually of grass. As with the killdeer, four eggs are usually laid, colored some shade of cream or clay and spotted with brown or black. It is not easy to discover the nest, but after the eggs hatch you cannot miss the young birds.

What was written some months ago about young killdeers is equally true of these little fellows. They are among the most attractive of living creatures. Smaller than young killdeers, they have the same tiny, match-stick legs, the same rudimentary wings, and the same soft and lovely mottled down. Also like the baby killdeer, the little spotted sandpiper can freeze into invisibility when in danger.

Eggs are sometimes laid in late May or early June although more often in late June. The young hatch 15 or 16 days later. An insect eater, the food habits of the spotted sandpiper make it entirely useful to man.



Edited by HARRY GILLAM

Hunters Set New Record in 1962

More licensed hunters than ever before! Reports issued by the State fish and game departments show that 13,999,375 persons bought hunting licenses in 1962. An increase of 245,012 over the 1961 season, the 1962 total, recently announced by the Bureau of Sport Fisheries and Wildlife, is the highest number of licensed hunters since records have been kept. Another 2.8 million persons also are believed to hunt legally without licenses.

Licensed hunters stand, as of 1962, nearly 80 percent above 1940 and nearly twice as much as the percentage growth of population during the same period.

Hunters paid \$68,106,023 for all licenses, permits and tags in 1962—also a new record. By law, the license money is used by the State agencies for research, land acquisition, development and maintenance, law enforcement, and other vital wildlife restoration and protection work.

Record Smallmouth from New River



This 7 pound monster smallmouth taken in New River by Richard C. French tops all previous entries for Freshwater Fish Citations and can consequently be considered an unofficial state record. Two 6 pound 10 ounces previously topped the list, one of which came from the New River.

Shock Disease Clues

A depletion of glycogen (animal starch) in the liver has been brought to light as a possible cause of the mysterious shock disease which causes some animals to drop dead from unusual

handling or stress. In an investigation of blood physiology of the snowshoe hare, a graduate student with the Alaska Cooperative Wildlife Research Unit noted a wide variation in blood analysis between live trapped snowshoes and those shot for study purposes. The glycogen shortage is most likely to occur during periods of high population, food shortage, and prolonged cold weather, which set the stage, at least in part, for "shock disease" epidemics.

Lady Anglers Slaying the Big Ones



Mrs. Margaret H. Beasley of Bowling Green proudly displays an 8 pound 8 ounce largemouth which won her a Freshwater Trophy Fish Citation. The big bass was taken in Caroline County.

A Lot of Turkey



Photo by Remsen
This granddaddy gobbler weighing nearly 25 pounds was killed by Hooker Massey of Snow Creek in Franklin County during the spring season. The big bronze bird had a 12 inch beard and a five foot wing span.



Commissioner of Game and Inland Fisheries A. Ree Ellis of Waynesboro, right, and former Commissioner Dr. William T. Pugh of Lynchburg display evidence of their gobbler hunting skill. The big birds weighed 20 and 18.5 pounds respectively. They bagged them on an early morning expedition in Amherst County.



Edna I. Ernst of Norfolk poses with a 7 pound 4 ounce citation largemouth taken in Lake Smith. The lunker largemouth was taken on a live shiner fished with a bait casting outfit.

Virginia All-State Collegiate Rifle Team



These young men were chosen to represent Virginia in the National Rifle Matches at Camp Peary as the Virginia All-State Collegiate Rifle Team. They are, left to right: L. Stephen Cook of VPI, Robert Wick, Jr., of VMI, Theodore G. Tiedeken of VPI, Gary W. Welch of the University of Virginia, and Richard Hawthorne, Jr., of the University of Virginia.

Two Game Biologists Join Staff

The Virginia Commission of Game and Inland Fisheries recently added two new District Game Biologists to its staff: Fairfax Settle will begin work with the Commission July 15 as District Biologist for the Northern Tidewater Section; W. Alan Guthrie assumed the duties of District Game Biologist in the Southeastern Virginia District June 15. Both will receive their M.S. degree in Wildlife Management from VPI in the near future.

YOUTH AFIELD

Edited by DOROTHY ALLEN

Hunter Safety Course



Twenty-five scouts and cubs from Troop 54 and Pack 76 of Edinburg completed the Hunter Safety Course sponsored by the Virginia Game Commission, the National Rifle Association, and Boy Scout Troop 54. The instructor was State Game Warden Fred Hottle, assisted by State Game Warden Skip Inskeep and Chief Fire Warden Ivan Coffelt. The scouts were shown films and slides on safe gun handling, and how to prevent hunting accidents in the hunting field.

The following scouts received a certificate of achievement and N.R.A. safe hunter shoulder patches: Billy Skelton, Mike Downey, Robert Golladay, Jim Long, Jimmy Rudicille, Richard Hoffman, Stanley Short, David Skelton, Dick Bowman, Rex Wightman, Garry Hoffman, Stephen Golladay, Ronald Hoffman, Tommy Bowman, Keith Lantz, Jay Hottle, Stanley Getz, Kenny Kline, Larry Coffman, Donald Hoffman, Stephen Gochenour, Larry Pence, Mike Didawick, and David Nelson.

Boyd Skelton and David Gochenour received N.R.A. Hunter Safety Instructor certificates.

Capron Elementary School

Capron Elementary School observed National Wildlife Week with a program in their auditorium following this year's theme "America needs outdoor recreation—Act now to provide for the future." Posters of birds, wild flowers, animals and other forms of wildlife made by the sixth grade students were on display.

Teachers directing the program were Miss Lizzie I. Story, Mrs. P. W. Smith and Mrs. Eager B. DeLoatche.

Appalachian Firm Gives Land for 4-H Club Center

Land for a year-round center for 4-H Club youths in 16 counties and 10 cities in western and central Virginia has been made available on the Blackwater River in Franklin County by the Appalachian Power Company. There are more than 16,000 4-H members in the area.

The property is on a peninsula bounded on three sides by Smith Mountain Lake. The land was purchased by Appalachian during its Smith Mountain land acquisition program.

Pine Project

A recent project of the Suffolk Kiwanis Club Conservation Committee was obtaining 2000 loblolly pine seedlings from Camp Manufacturing Company of Franklin. One hundred sixty families planted the seedlings in their yards as dividers and for windbreaks. The growth of the seedlings since spring has brought favorable comment from the public and the Kiwanis Club is justly proud of this project.

Accompanying pictures show pines planted by Mr. O. G. Kennedy, chairman of Suffolk Kiwanis Club Conservation Committee, in his yard.



Recently planted pines against a background of loblolly pines planted as seedlings in 1954.



Paula Kennedy stands in front of nine-year-old pines that were planted six feet apart for a windbreak as well as beauty.

Large Smallmouth Bass



Morrison Studio photo, Woodstock
Norman Henry, 14-year-old son of Robert L. Henry of Woodstock, displays the 5 3/4 pound, 23 1/2 inch smallmouth bass he caught in the north fork of the Shenandoah River. He landed the bass less than 100 yards from his home with a rod and spin cast reel, using a 7/8 ounce jointed pike plug on a 15 pound monofilament fishing line. He was assisted in landing the fish by his brother, Billy, and a friend, Mickey Morrisette. Norman received a Trophy Fish Citation for outsmarting this bass.

Book Review

In My Favorite Animal Stories, Gerald Durrell has brought together an entertaining sampling of some of the most famous names in literature.

The book of 13 stories includes one story about an otter, another about an octopus hunt, and two of James Thurber's incomparable dog stories. T. H. White tells about a wild boar hunt; Herman Manville describes a great shoal of whales; and Jim Corbett shares his personal excitement in hunting a man-eating tigress. Lovers of pet stories will find one by T. H. Lawrence about his family's pet rabbit, Adolf, and another about a cat, Johnny One-Eye, by Damon Runyon.

In My Favorite Animal Stories sells for \$2.95, and is published by Whittlesey House, McGraw-Hill Book Company, Inc., New York, N. Y. 10036.

ON THE WATERFRONT



Edited by JIM KERRICK

Small and Crafty Charts

Most coastal small boat operators have probably handled the more or less awkward sheets of charts, as published in the past by the U. S. Coast and Geodetic Survey—a particularly difficult chore in rough weather or at night. It should be good news to boaters that a series of new charts is now being published by the Survey in a more practical format.

The new Small Craft charts are carefully designed for convenience in handling and "one handed" use under demanding sea conditions. Aimed toward the recreational boater, the charts are issued under illustrated covers and feature large-scale insets of small boat harbors, tabulated lists of available facilities and supplies, and information on tides and currents. The charts make full use of common symbols and abbreviations, photographs of prominent land features (especially valuable when one is unfamiliar with the shoreward terrain), magnetic courses and distances, and other related references.

The new "SC" charts are published in three classifications, as follows: (1) 100-C to 199-C—small-craft chart folios consisting of three or four folded sheets printed front and back, and bound in a suitable cover, (2) 600-C to 699-C—small-craft route charts (rivers and narrow waterways), consisting of a folded single sheet, printed front and back and issued in a suitable jacket; 800-C to 899-C—small-craft route charts (intracoastal waterway) consisting of a folded single sheet printed front and back, and issued in a suitable jacket (intracoastal waterway charts are being converted to the small-craft format—800-C type—with discontinuance of the existing intracoastal waterway chart of the area as each is completed), (3) 70-SC to 9500-SC (not including the above three numbered groups)—generally conventional charts folded on a horizontal axis, accordian-folded into panels and issued in a protective jacket.

These small-craft charts are issued annually, and up-to-date critical changes may be found by consulting local and weekly Notices to Mariners. As each new edition is printed, all nautical changes are incorporated. A 20 per cent discount is offered in lots of 10 or more copies of an individual chart, and they may be obtained either singly or in quantity from U. S. Coast and Geodetic Survey, Washington 25, D. C. (write the Survey directly for prices), or from local marine outlets handling these charts.

Our hats are off to the U.S.C.G.S. for a splendid effort to provide the "cockpit navigator" with practical charts that he can readily comprehend and handle.

—Sport Fishing Institute

A Word to Dad

To hold Junior's interest in boating, make him an active participant. Assign him specific navigational duties, such as spotting buoys (especially good if he can use binoculars), putting out fenders, and securing dock lines. Keep him busy and he'll enjoy himself more. So will you.

Boating Safety

Boating Safety consists primarily of four factors, the Person, the Boat, the Water and Weather conditions.

THE PERSON: He is responsible for the operation, maintenance and necessary decisions made while boating. He should be safety conscious of himself, his companions and others. He should be courteous, taking always his fellow sportsman into consideration first. He should be able to make proper decisions and see that necessary tasks are completed before, during and after operation of the boat. He should see that his boat is always in good working order and that necessary safety equipment and other needed equipment is aboard.

THE BOAT: A periodic safety check of the boat should be made, checking for leaks, worn parts and deterioration.

The boat should include safety equipment and essential items needed in case of emergencies. On seagoing vessels a radio receiver and transmitter should be standard equipment. A boat should be used in the capacity that is intended. Overcrowding a boat is a sure way for possible sinking which could cause loss of life. A large motor should never be used on small boats. Again, this can lead to sinking or capsizing.

THE WATER: Large boats should use larger bodies of water; small boats should stick to smaller bodies of water. When water is high, watch for floating logs and trash. High speed boating should never be attempted under these conditions. Be careful on rivers during high water; many boats have been swept over rapids.

THE WEATHER: Never go out on the water when a storm is brewing. If you're caught in one, make for shore or a protective cove as soon as possible. When planning an extended boating trip, weather conditions should be checked before and during this operation.

In addition to this safety advice, plain horse sense is helpful.

—K. L. Phipps
Blacksburg

Boat Trailers

A new law in Virginia permits the use of portable tail light assemblies attached to the end of trailered boats in lieu of a stationary rear lamp. Annual trailer licensing fees have been raised to \$8.50 for one or two wheelers of a cradle, flat bed or open pickup type. Speed limits for passenger motor vehicles while towing utility, camping or boat trailers not exceeding an actual gross weight of 2,500 pounds have been raised to the same as those for passenger motor vehicles, i.e., 65 miles per hour on the Interstate System of Highways or other limited access highways with divided roadways, 60 miles per hour on non-limited access highways having four or more traffic lanes, and 55 miles per hour on other highways of the state.



When you think of the kind of world you want for your children, what are the words that come first to mind?

PEACE?
FREEDOM?
SECURITY?

Yes of course. And how about—

SAFETY?

How about freedom from the killing, crippling, tragic effects of ACCIDENTS?

We all want to do our bit to make a better world, for our children and for ourselves.

All of us **can** help reduce the pain and misery which accidents bring.

Give children early and consistent **training** for alert, careful living.

Offer them a **good example** of common-sense safety.

Especially when you—

DRIVE

HANDLE FIREARMS

or enjoy WATER SPORTS—

*be cautious,
watchful,
and alert!*

While striving for a good world, let's not carelessly overlook the always present threat of accidents.



BOBWHITES



WALLEYE, WITH
REDHORSE SUCKERS



WHITE-TAILED DEER



BLUEGILL



BROOK TROUT



GREEN-WINGED TEAL



BROWN TROUT



RUFFED GROUSE

NEVER OFFERED BEFORE

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WILDLIFE
FULL COLOR COVER
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Make your check or money order payable to the *Treasurer of Virginia* and send it with your order to the Commission of Game and Inland Fisheries, Box 1642, Richmond 13, Virginia. Please do not send cash through the mail. (Be sure to specify Set No. 2).

